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UNCLASSIFIED- INFORMATION ON SOVIET BLOC INTERNATIONAL GEOPHYSICAL COOPERATION -1959

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INFORMATION ON SOVIET BLOC INTERNATIONAL GEOPHYSICAL COOPERATION - 1959

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INTERNATIONAL GEOPHYSICAL COOPERATION PROGRAM --

SOVIET-BLOC ACTIVITIES

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I. ROCKETS AND ARTIFICIAL EARTH SATELLITES

Shternfel'd on Soviet Cosmic Rocket III

Ariy Shternfel'd, winner of the International Incentive Award for Astronautics, makes the following conclusions, based on the data reported in the press on the progress of the third Soviet cosmic rocket.

The Earth-Moon part of the rocket's trajectory underwent great changes as a result of the interaction of the field of attraction of the Earth and the Moon. However, from the moment when the automatic interplanetary station and the Moon separated, the latter exerted practically no influence on the station's orbit, which took on the form of an ellipse.

The center of the station's elliptical orbit in relation to the center of the Earth was 215,000 kilometers. Whereas the major axis of the orbit is about 523,000 kilometers, its minor axis is about 300,000 kilometers.

The perimeter of the elliptical orbit along which the station travels is equal to approximately 1,300,000 kilometers. The station moves along this path with a velocity close to the orbital velocity of the Moon, 1.02 kilometers per second.

At the moment of its closest approach to Earth, the speed of the station is at its maximum, about 4 kilometers per second. This is 5 percent less than the second cosmic velocity, which, at such a distance from the Earth is 4.2 kilometers per second.

The second cosmic velocity is not a constant value. It decreases as the force of gravity decreases. For example, if it is 11.2 kilometers per second at the Earth's surface, at a distance of 40,000 kilometers it is 4.2 kilometers per second. This means that a rocket starting with an automatic interplanetary station at the perigee distance would need only to impart a speed of 0.2 kilometers per second to free itself from the Earth's force of gravity.

The speed of the station as it approaches apogee (in this case, 470,000 kilometers) gradually diminishes until at this point, it will be about 1,400 kilometers per hour.

Inasmuch as the orbit of the automatic interplanetary station lies at a great distance from the Earth, its lifetime is unlimited. This, of course, discounts such things as collisions with large or small meteorites or other cosmic surprises.

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Proceeding from the dimensions of the station's, orbit it is possible to calculate that the orbital period of the station is equal to about 15.3 days. The Moon's period of rotation around the Earth in relation to the stars is 27.32 days. Consequently, from time to time, the automatic interplanetary station, the motion of which occurs in a plane almost perpendicular to the plane of the Moon's orbit, will pass not far from the latter.

When, after its first encounter with the Moon (6 October), the interplanetary station again approaches the orbit of the Moon on 22 October at midnight, it will not encounter the latter there. The Moon will be on the opposite side of the Earth from the station. This distance will gradually change.

For investigating surface of the Moon, in principle, it is possible to build automatic interplanetary stations which will make periodic flights around the Earth and the Moon, whereby the phase of the latter will be different on each pass. Such "periodic" stations, rotating according to elongated elliptical orbits, can make, for example, about 13-14 flights around the Moon in the course of a year. However, in this case, the station will pass wide of the Moon by some tens of thousands of kilometers and at a very high speed.

The orbits of such artificial celestial bodies, passing at close distances from the Moon will be distorted considerably. The oblateness of the Earth and other factors will also influence the motion of the stations. In principle, it is possible in the future to correct constantly the orbits of such "periodic automatic stations" by means of miniature rocket engines. ("Via Untrod Paths," by A. Shternfel'd; Moscow, Izvestiya, 14 Oct 59, p 4)

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Soviet Rocket III May Give Answer to Moon's Shape

The launching itself of the third Soviet cosmic rocket to fly around the Moon is a brilliant solution to one of the most difficult problems of cosmic ballistics, says V. Fedynskiy, Doctor of Physicomathematical Sciences, writing in Pravda.

Another brilliant achievement, Dr Fedynskiy says, is the realization of telemetric communication with the rocket at distances of over 400,000 kilometers. Telemetric communication with the rocket makes it possible to obtain in one concentrated transmission the information continuously accumulated by the automatic interplanetary station in flight. Telemetric communication is also an important step toward the creation of guided space missiles and a step paving the way to interplanetary flights.

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Sounding of the region of cosmic space around the Moon, continues Dr Fedynskiy, opens a completely unusual perspective for new discoveries in geophysics and astronomy. Even the very movement of the third "lunik" in flying around the Moon, that is, its trajectory alone, can give valuable information concerning the shape of the Moon. The oblateness of celestial bodies, i. e., the difference in their polar and equatorial diameters, which is a consequence of their rotation around an axis, introduces easily observed perturbations in the motion of bodies flying around them.

While it is true, says Dr Fedynskiy, that the Moon's oblateness is not large, the fact that the Moon always turns with one side toward the Earth may mean that it has the form of a triaxial ellipsoid. That is, it may be drawn out in its equatorial plane in the direction of the Earth. The flight around the Moon and an exact study of the rocket's trajectory can aid in explaining the shape of the Moon.

The flight around the Moon can possibly also explain whether the traces of the ionosphere observed near it are connected with the Moon itself or whether this phenomenon is related to the general gaseous structure of interplanetary space.

Telemetric communication with the instruments of the automatic interplanetary station at such a considerable distance indicates the possibility of sending automatic instruments controlled from the Earth to the Moon, says Dr Fedynskiy. Then the Moon will become the object of investigations by geophysical methods. ("Interplanetary Automatic...", by Dr V. Fedynskiy; Moscow, Pravda, 11 Oct 59, p 6)

Siforov Discusses Third Cosmic Rocket

The third Soviet cosmic rocket has a number of important features which were lacking on the first two Soviet cosmic rockets, says V. Siforov, Corresponding Member of the Academy of Sciences USSR. The apparatus of the third cosmic rocket is intended for operation over a longer period, since the time of travel around the Moon and the return to the vicinity of the Earth will be over 2 weeks. To ensure this operation, says Siforov, solar batteries were included in the power sources. Secondly, more economy in the use of electric energy was provided for by the regime of work of the apparatus and the transmission of information, which was accomplished according to an assigned program -- from 2 up to 4 hours per day. Thirdly, control of the inboard apparatus was conducted from the Earth. This makes it possible, says Siforov, to switch on the inboard apparatus only when it is possible to expect obtaining valuable scientific information. In this way, a considerable economy of power is achieved.

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Siforov lists the landing of scientific instruments on the Moon, flights to Mars and Venus, the use of artificial Earth satellites for retransmission of television broadcasts, and the accomplishment of regular space voyages, as among the problems and tasks which must be solved for the further conquest of space. He is confident that they will be solved in the not to distant future. ("Daring Interplanetarian," by V. Siforov; Moscow, Izvestiya, 9 Oct 59, p 3)

Information From Bulletins on Space Rocket III

At 2000 hours Moscow time on 9 October, the automatic interplanetary station is reported as being in the constellation of Serpens, having a right ascension of 16 hours 40 minutes and a declination of minus 2 degrees 36 minutes. At this moment, the station is over a point on the Earth's surface with the coordinates 3 S and 22 W. The station's distance from the Earth is reported as being 466,000 kilometers.

It is predicted that the station will reach the apogee of its orbit on 10 October and then begin its return toward the Earth, passing at a distance of 40,000 kilometers from the Earth's surface at 2000 hours on 18 October.

The station, having an orbital period of about 15 days, will travel more than one million kilometers during one revolution around the Earth.

According to information received during the 8 October transmission from the station, all the scientific apparatus, equipment, and automatic instruments are functioning normally.

The next transmissions will be made on 12 and 15 October from 1700-1800 hours Moscow time. ("Rocket in Motion"; Moscow, Izvestiya, 10 Oct 59, p 1)

The third Soviet cosmic rocket reached its maximum distance from the Earth on 10 October.

The precise injection of the automatic interplanetary station with the aid of a multistage rocket into a fixed trajectory ensured the passage of the interplanetary station in a strictly determined position relative to the Moon during its maximum approach. This made it possible to realize the required use of the effect of the Moon's gravity for bending the trajectory of the station's future progress, which ensures its returning toward the Earth from the direction of the northern hemisphere.

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In its future motion toward the Earth from the northern part of the heavens, the station will increase its inclination continuously. For points located north of 60 N, the automatic interplanetary station will not pass behind the horizon at any time during the period from 15 to 18 October.

At 2000 hours Moscow time on 10 October, the station was in the constellation of Serpens at a point with the equatorial coordinates of right ascension, 16 hours 44 minutes, and declination, one degree 23 minutes.

At this moment, the station was over a point on the Earth's surface with coordinates of 1.4 N and 22.6 W, at a distance of 470,000 kilometers from the Earth.

All apparatus is operating normally. The next transmission will be made on 12 and 15 October from 1700-1800 hours Moscow time. ("Rocket in Motion", Moscow, Izvestiya, 11 Oct 59, p 1)

The automatic interplanetary station, reaching apogee, began its return toward Earth and at 2000 hours Moscow time on 12 October and was 456,000 kilometers from Earth.

At apogee, the station had a minimum velocity equal to 0.4 kilometers per second. After passing apogee, the station's speed increased until, on 12 October, it reached about 0.5 kilometers per second.

At 2000 hours Moscow time on 12 October, the station was still in the constellation of Serpens and had equatorial coordinates of right ascension, 16 hours 51 minutes 19 seconds and a declination of 9 degrees 26 minutes 24 seconds. At this time, the station was over a point on the Earth's surface with the coordinates of 22 42 W and 9.4 N. ("On the Motion of the Third Soviet Cosmic Rocket", Moscow, Pravda, 13 Oct 59, p 1)

On 13 October the station was at a distance of 430,500 kilometers from the Earth. At 2000 hours Moscow time on this date, it had shifted from the constellation of Serpens to that of Hercules at a point with equatorial coordinates of 16 hours 55 minutes 13.8 seconds right ascension and 13 degrees 54 minutes declination.

At this time, the station was over a point in the Atlantic Ocean south of the Cape Verde Islands with the coordinates 22.7 W and 13.9 N. ("On the Motion of the Third Soviet Cosmic Rocket"; Moscow, Pravda, 14 Oct 59, p 1)

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Planetary Astronomy Discussed by Soviet Scientist

The role of planetary astronomy has become especially important, now that we stand on the threshold of space travel, says A. N. Dadayev, Candidate of Physicomathematical Sciences, in a Sovetskaya Aviatsiya article.

Astronomers will obtain extremely interesting data as a result of the launching of the third Soviet cosmic rocket. When the automatic interplanetary station again approaches the Earth after its flight around the Moon, it will be possible to observe it with the aid of optical instruments -- powerful telescopes, says Dadayev. These observations will undoubtedly give most valuable information concerning the flight of the interplanetary station.

The success of such observations depends on observatories being equipped with large telescopes, says Dadayev, and in this matter, the Soviet Union has come a long way since the days of the Great October Revolution. During this time, a first-class optical-mechanical industry, and with it, a manufacturing base for the production of telescopes, has been developed. As far back as 1939, the Soviet Union produced a horizontal solar telescope which was used for solar investigations. This instrument, according to Dadayev, has a focal length of about 60 meters and gives an image of the Sun with a diameter of 56 centimeters. It compares favorably with much newer, larger telescopes. Connected with the building of the horizontal solar telescope are N. G. Ponomarev and D. D. Maksutov, who was then awarded a Stalin Prize.

Among the first who gained success in building telescopes in the postwar years, says Dadayev, was B. K. Ioannisiani. In the course of several years, he created a number of instruments of original design, embodying in them the main ideas of Maksutov [chief of astronomical instrument building at Pulkovok observatory]. In 1951, he built an excellent meniscus telescope with a diameter of 50 centimeters for the Astrophysics Institute in Alma-Ata. Academicians Fesenkov and Rozhkovskiy, studying the possible processes of star formations, made their great discoveries using this instrument.

Still more efficient in design and other respects was the meniscus telescope with a lens diameter of 70 centimeters which was installed in the Abastumani observatory toward the end of 1956. This telescope, according to Dadayev, is automated to the maximum extent. He claims that such automation in astronomical instruments is not yet being done abroad.

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Each launching of an artificial Earth satellite or cosmic rocket says Dadayev, is an event of great importance for all astronomers and scientific workers in the USSR. Before Sputnik I was launched, a great number of small telescopes for visual observations were ready, the product of Soviet industry. About 70 stations located in USSR territory are engaged in collecting material on satellite orbits and directing these findings to the computing center.

Photographic observations have replaced visual observations in a number of stations. The apparatus is being continually improved, and at present, the accuracy in recording the moment of a satellite's passage has been increased from 0.5 to 0.001 seconds.

Optical means of observing space craft are much more accurate than radio methods, and it was with this in mind, according to Dadayev, that Prof I. S. Shkolvskiy of Moscow University proposed a method of creating an artificial comet (the sodium cloud) along the path followed by the rocket to facilitate detection of the rocket. This method was successfully used in the first two Soviet cosmic rockets.

Dadayev states that in observations of the flight of the automatic interplanetary station electrono-optical and television apparatus in combination with telescopes can render indispensable service. This same apparatus is required also for observations of space craft flying toward Mars and Venus.

This will also require more powerful telescopes. Dadayev says that a telescope with a diameter of 2.6 meters is now being built for the Crimean observatory. Its designer is B. K. Ioannisiani, who was honored in 1937 for his previous work. According to Dadayev, the Crimean telescope will be the largest in Europe. To judge its size, he says it is only necessary to consider that the telescope tower will be as high as a 7-story house.

The Crimean telescope is to be used for terrestrial observations and studies of the planets. The quietness of the terrestrial atmosphere plays an important role in planetary observations. The use of motion pictures in photographing the planets is considered advantageous in overcoming this difficulty.

Another method of being rid of atmospheric disturbances, says Dadayev, is to organize planetary observations from artificial earth satellites and rockets lofted beyond the limits of the atmosphere. The tasks confronting astronomers and designers here are also difficult. Not only does the problem lie in building apparatus for returning the results of the observations to Earth but also in the development of a telescope whose lens would be protected from the harmful action of innumerable micrometeorites. ("Instruments of Planetary Astronomy," by A. N. Dadayev; Moscow, Sovetskaya Aviatsiya, 10 Oct 59, p 4)

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Report Latest Soviet Space Satellite Controlled From Earth

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A short newspaper article by Ragim Guseynov, director of the Astronomical Station of the Azerbaydzhan University, carries the following statement. "The automatic interplanetary station, which is the first cosmic laboratory controlled [upravlyayemaya] from the Earth, will give much new information on the interplanetary space between the Earth and Moon and beyond the Moon. The control [upravleniye] of the movement and operation being accomplished for the first time testifies to the gigantic potentialities of rocket engineering, radio electronics, and other branches of modern engineering in the matter of organization of future interplanetary travel." ("Ways Are Being Paved for Cosmic Ships," by Ragim Guseynov; Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 7 Oct 1959)

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Order of Soviet Lunar Research Projects Given by Czechoslovak Professor

The Soviet Union plans to use the following sequence in its lunar research program, Czechoslovak Prof Rudolph Resek stated in a recent interview: rocket flight into the vicinity of the Moon (already accomplished); impact landing on the Moon (already accomplished); soft landing on the Moon with instrument package (for which a plan by Khlebtsevich is already in existence), including the release of a research tank on the lunar surface; and placing an artificial Moon satellite in orbit. Professor Resek, who, is a Corresponding Member of the Czechoslovak Academy of Sciences and a delegate to the London International Astronautic Federation, said that the precise timetable of the two latter projects is difficult to predict but stressed that they will definitely be completed in the order listed. He remarked that chemical rocket fuels are sufficient for the completion of all these projects, although he is aware that ion propulsion and nuclear power plants are also being tested. ("When Will the First Astronaut Fly," by Miroslav Smetana; Prague, Tvorba, 17 Sep 59, pp 892-893)

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II. UPPER ATMOSPHERE

Ionosphere Sounding Network Operating in China

A network of ionospheric stations which conduct vertical sounding of the ionosphere for measuring the altitude of the reflecting layer and the degree of its ionization, and for studying the capability of the ionizing layers to reflect different frequencies has been built in the People's Republic of China, according to Ma Ta-yu, deputy chairman of the Preparatory Committee of the Scientific Research Institute of Electronics of the Academia Sinica.

A photograph of a radiotelescope used for observation of solar radiation, which was built by instructors and students of Peking University appears in the article. The instrument's reflector appears to be about 8 feet in diameter. ("First Successes of Radioelectronics in the People's Republic of China," by Ma Ta-Yu; Moscow, Radio, No 9 Sep 59, pp 18-19)

Chief of Urania Observatory (Budapest) Comments on Mars

Dr Gyorgy Kulin, chief of the Urania Observatory and president of the TIT (Society for the Spreading of Scientific Knowledge) Astronautics Committee, is the author of two recent articles. The latest, a brief history of astronomy, appeared in the 26 September 1959 issue of Magyar Ifjusag [Hungarian Youth], Budapest. Dr Kulin does not mention his work or that of the Urania Observatory in the article.

An earlier article, which appeared in the 16 November 1958 issue of Elet es Tudomany [Life and Science], Budapest, was titled "Unsolved Problems of the Planet Mars." While Dr Kulin makes no specific mention of his own work, he writes with some authority on the subject. The unsolved problems mentioned are the make-up of the Martian atmosphere, the nature of the Martian canals, whether life exists on Mars, the nature of the "bright swellings" which sometimes appear on Mars and the pecularities of the orbit of Phobos. Dr Kulin proposes that the "bright swellings" are caused by meteor impacts, and that Phobos' orbit is affected by the passage of the satellite through a "braking medium," a ring of dust created by the satellite itself.

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III. METEOROLOGY

New Meteorological Laboratory in Azerbaydzhan

A laboratory for studying thunderstorm processes has been set up in the mountains near Azerbaydzhan at an altitude of 1,500 meters above sea level. ("From All Corners of the Country"; Moscow, Pravda, 10 Oct 59, p 4)

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IV. OCEANOGRAPHY

Soviet Weather Ship in Singapore

The first Soviet weather ship A. I. Voyeykov is now in Singapore, according to a report by radio from Capt N. Buyanov. News of the launching of the third cosmic rocket was received in the port. According to Capt Buyanov, the news of the launching is on everyone's lips, and members of the ship's complement are the recipients of congratulations from many of the city's inhabitants. The ship was visited by a group of associates of the Malay hydrometeorological service.

The expedition has already made more than half of its projected investigations. A hydrological profile of the Red Sea and the Indian Ocean was made and a wealth of scientific materials has been collected. New data already compel a reconsideration of some previous representations by scientists. An extremely interesting phenomenon is the underwater sand dunes transported by tidal currents, which were discovered on the bottom of the Strait of Malacca. ("News of the Rocket Is on All Lips," by Capt N. Buyanov; Moscow, Pravda, 10 Oct 59, p 4)

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V. GLACIOLOGY

Expedition Ends 3-Year Sojourn on Fedchenko Glacier

Members of the glacier expedition of the Academy of Sciences Uzbek SSR, who spent the last 3 years on the largest high-mountain glacier in the Pamirs, the Fedchenko, are reported to have returned to Tashkent.

Glaciers in the Pamirs occupy more than 8,000 square kilometers. The sources of many Central Asian rivers are located here. Before the scientists of the expedition was the task of becoming acquainted with the regularity of the formation of the Pamir glaciers and to study the process of their development. Thousands of different observations were conducted on Fedchenko glacier, and for the first time, many other large glaciers were studied.

One of the scientific stations was set up on the upper part of the Fedchenko glacier at an altitude of 5,000 meters above sea level. This was the first attempt by man to remain for a long time under conditions of rarefied atmosphere, very high solar radiation, and low temperatures, says the report.

Eight Soviet explorers, under the leadership of V. Nozdryukhin, geographer-alpinist and Master of Sports USSR, carried out major scientific work at the high-mountain laboratory under complex and difficult conditions. Living in the little hut which, along with its glacier foundation, crept more than 400 meters during the 3 years, was full of surprises, one of which was the appearance of an enormous crack, cleaving the ice directly beneath the hut. At other times, snow would pile as high as its roof.

The members of the expedition are now beginning the processing of the vast amount of materials collected. ("Three Years Among the Pamir Glaciers," Moscow, Pravda, 9 Oct 59, p 6)

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Severnyy Polyus-8 Is Contacted by Plane

For several months after the station staff members of the drift station Severnyy Polyus-8 were left on the ice floe, contact with them was maintained by radio only. Not a single plane was able to make a landing on the drifting ice during the summer.

The summer months gave the station staff a great deal of trouble. The snow around the huts melted, and the men found themselves on an ice foundation, about 1.5 meters high, from which they expected to slide off any minute. To save the equipment, the station site had to be moved to a safer place on the ice floe. However, scientific research work continued according to plan.

Not until early September did an IL-14 plane, piloted by Baranov, drop mail on Severnyy Polyus-8. Several days later, an LI-2, piloted by Pedchenkov, made several experimental flights, with a landing on Severnyy Polyus-8. The plane delivered mail, fresh meat, bread, fresh potatoes, onions, new motion picture films, and various types of equipment and materials. ("Airplane Lands on SP-8," Moscow, Vodnyy Transport, 26 Sep 59)

Spring Activities Begin in Antarctica

Members of the Fourth Soviet Antarctic Expedition have started on the spring and summer work under the IGC program.

According to a radio report from expedition chief, A. G. Dralkin, Candidate of Geographical Sciences, the period between sunrise and sunset at the stations Mirnyy and Lazarev now lasts about 11 hours. The month of August was comparatively cold; the minimum air temperature at Mirnyy was minus 34 degrees Centigrade and at Vostok, minus 85.7 degrees. The latter was the lowest temperature recorded on the earth during 1959.

All planes have now been moved to the shore ice. Regular scheduled flights have begun.

A sled-tractor train consisting of two "Pingvin" snow vehicles with two trailer sleds, carrying a total load of about 24 tons, left Mirnyy on 14 September. The members of this party, i.e., a gravimetric group of the Institute of Physics of the Earth, Academy of Sciences USSR, together with other scientists, will continue work in the region of the South Geomagnetic Pole. The traverse is to last about 4 months and is headed by S. N. Shcheglov, senior scientist of the gravimetric group. ("To the Interior of Antarctica," Moscow, Vodnyy Transport, 22 Sep 59)

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Geophysical Research Resumed by Expedition Party

On 22 September, The sled-tractor train advancing into the interior approached a "gurly" [landmark made of a stone mound] located 147 kilometers from the coast of Davis Sea. At this place, which has an altitude of over 1,500 meters, the Soviet scientists resumed the complex geophysical research under the IGC program, which was temporarily discontinued 3 months ago because of the polar night.

During the traverse, the expedition members are continuously conducting precise geophysical observations from the Antarctic coast to the interior of the continent. It is planned to conduct observations as far as the South Geomagnetic Pole. The results of these investigations, together with data of glaciological and seismological studies made by previous Soviet expeditions, will make it possible to construct a meridional profile of Antarctica, extending over 1,400 kilometers, which should be of great scientific interest.

According to reports from the expedition party, the train has reached a hard snow surface and the vehicles can operate in second gear, despite the sastrugi which occasionally reach a height of 120 centimeters. ("Research Continues," Moscow, Vodnyy Transport, 26 Sep 59)

Preparations for Trans-Antarctic Traverse in Progress

Members of the Fourth Soviet Continental Antarctic Expedition are preparing for a scientific research traverse across the central regions of Antarctica and the South Pole. The traverse will be made with the help of three powerful "Khar'kovchanka" snow vehicles, which were left behind at the station Komsomol'skaya over 7 months ago.

On 27 September, a sled-tractor train left Mirnyy and headed for the interior. The route led from the coast of the Davis Sea to Komsomol'skaya, 3,420 meters above sea level. The party consists of 16 polar scientists headed by V. Chistyakov, chief of the overland transport detachment.

This "supply train" (so called by members of the Fourth Antarctic Expedition) consists of five heavy caterpillar tractors and four sleds loaded with freight weighing a total of about 70 tons.

In the early part of the route, the train had to cross a wide zone of crevasses. Despite the great difficulties of traveling up the steep glacial slope, the sled-tractor train had advanced 82 kilometers by the end of the first day and had ascended to an altitude of 1,250 meters. At this point, three steel sleds carrying diesel fuel were added to the train; they had been brought to this place by an experimental run preceding the actual train traverse.

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A heavy blizzard checked the further advance of the train for 2 days. As soon as the weather improved, the party continued to advance, covering only 280 kilometers in 5 days.

At 1500 hours Moscow time on 5 October, the train was at a height of 3,650 meters above sea level. This left a distance of 15 kilometers to go before reaching the station Pionerskaya, where Soviet scientists had conducted scientific observations from 27 May 1956 to 15 January 1959.

As soon as the party arrives in Komsomol'skaya, the expedition members will put the "Khar'kovchanka" snow vehicles into running condition and form the scientific-research train. While preparations for the trans-Antarctic traverse are in progress, the station Komsomol'skaya will be reactivated. During the spring and summer period, it will operate once more as an auxiliary, intermediate sled-tractor and aviation base. ("Expedition Into the Interior of the Ice Wilderness," Moscow, Vodnyy Transport, 6 Oct 59)

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